

## **Title V**

### **Model General Permit Template**

#### **SERIES 2 INTERNAL COMBUSTION ENGINES**

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#### **Template # SJV-IC-2-0**

**fired on gasoline with a sulfur content  
of less than or equal to 0.008% by weight**

This template is designed to streamline the Title V permitting process for internal combustion engines meeting the above qualifications. Applicants for Title V permits choosing to use this template will only have to complete the enclosed template qualification form and submit it with their Title V application.

**San Joaquin Valley Unified Air Pollution Control District  
FINAL**

**Title V Model General Permit Template  
Series 2 Internal Combustion Engines**

**Template No: SJV-IC-2-0**

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# **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT**

## **TITLE V GENERAL PERMIT TEMPLATE SJV-IC-2-0**

### **ENGINEERING EVALUATION**

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# Template #SJV-IC-2-0

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## I. Purpose

The purpose of the proposed template is to streamline the Title V permitting process and reduce the time required by the applicant and the District by identifying the federally applicable requirements for internal combustion (IC) engines and establishing permit conditions which will ensure compliance with such requirements. These conditions will be incorporated into the Title V permit of any facility choosing to make use of the template.

## II. Template Applicability

The template applies to any internal combustion (IC) engine which is fired on gasoline with a sulfur content of less than or equal to 0.008% by weight. The applicability of this template can best be established by answering the questions on the Template Qualification Form attached as Appendix D.

## III. Applicable Requirements

Units may be subject to “federally enforceable” requirements as well as requirements that are enforceable by the “District-only”. Federally enforceable requirements will be enforceable by the EPA and the public through Title V permit conditions identified as federally enforceable. District-only requirements represent local or state regulations for which the EPA has no direct enforcement authority. The final Title V permits issued by the District will contain both federally enforceable and District-only requirements.

District-only requirements are not addressed in this template. Table 1, Applicable Requirements, does not necessarily include all federally enforceable requirements that apply to IC engines qualifying to use this template, and it is the source’s responsibility to determine any and all applicable requirements to which the source is subject. Generally, requirements not addressed by this template are those that require a source-specific analysis, or are covered by other templates.

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**Table 1. Applicable Requirements**

Rule Category	Rule/Regulation	Citation	Description
A	SJVUAPCD Reg. IV	4201 Section 3.1	Particulate Matter Concentration
A	County Rule	404 <sup>1</sup>	Sulfur Compounds
A	County Rule	406 <sup>2</sup>	Sulfur Compounds
A	County Rule	407 <sup>3</sup>	Sulfur Compounds
A	SJVUAPCD Reg. II	2520, 9.4.2, 9.5.2	Periodic Monitoring and Recordkeeping
B	SJVUAPCD Reg. II	2201	New Source Review Rule
B	SJVUAPCD Reg. II	2520	Federally Mandated Operating Permits
B	SJVUAPCD Reg. IV	4101	Visible Emissions

Category “A” rules contain requirements that are directly applicable to the qualifying units; compliance with these applicable requirements will be demonstrated in this engineering evaluation and assured by the template permit conditions. In section IV, Compliance, the federally-enforceable requirements from category “A” rules are listed with a discussion of how compliance with these requirements is achieved.

Category “B” rules contain federally enforceable requirements that were not addressed in this template. These may not be all of the federally enforceable requirements for this unit. Requirements from these rules must be addressed by the applicant outside of this template within the Title V application Compliance Plan form (TVFORM-004). Category “B” listing is included in this table as an informational item to assist applicants in this effort.

## IV. Compliance

This section contains a discussion of how compliance is assured with each requirement addressed in this template.

### District Rule 4201

Section 3.1 requires emissions to be at or below 0.1 grain of particulate matter (PM) per dry standard cubic foot of exhaust gas. The following analysis shows that internal combustion (IC) engines that qualify to use this template are expected to be in compliance with this particulate matter emission rate limit:

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<sup>1</sup> Madera

<sup>2</sup> Fresno

<sup>3</sup> Kings, Merced, San Joaquin, Tulare, Kern, and Stanislaus

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Assuming all PM from combustion is PM-10,

$$\left[ \frac{0.10(\text{lbPM})}{10^6(\text{Btu})} \right] \times \left[ \frac{7000(\text{grains})}{(\text{lb})} \right] \times \left[ \frac{10^6(\text{Btu})}{8710(\text{dscf})} \right] = 0.08 \frac{\text{grain}}{\text{dscf}}$$

where  $\frac{0.10(\text{lbPM})}{10^6(\text{Btu})}$  = Emission Factor PM-10 (AP-42, Table 3.3-2,  
Uncontrolled gasoline industrial engines)

$$\frac{10^6(\text{Btu})}{8710(\text{dscf})} = \text{F Factor (40 CFR 60, Appendix A)}$$

However, although the above analysis is sufficient to assume that IC engines using this template comply with the 0.1 grain/dscf limit, the analysis is insufficient to show compliance in all cases. Therefore, monitoring will be required in the form of source testing unless the engine is an emergency or backup IC engine operating less than 200 hours per year. If the initial test results for PM emissions are measured to be less than or equal to 0.06 grain/dscf, testing will be required at least once every 5 years. Otherwise, testing shall occur not less than once every 24 months. Test results from an engine that represents a group of engines in terms of rated brake horsepower, engine make and series, operational conditions, fuel used, and control method, shall satisfy this condition provided this group of engines is owned and operated by a single owner/operator.

Permit conditions will be added to assure compliance with the emission limits of this rule and associated testing, monitoring, and recordkeeping. See template permit conditions #2, and #5-8.

Rules 402 (Madera) and 404 (in all seven remaining counties in the San Joaquin Valley) are replaced by Unified District Rule 4201. The above analysis shows compliance with all these rules, regardless of which are SIP approved at the time of permit issuance. By using this template the applicant is requesting a permit shield from the requirements of Rules 402 (Madera) and 404 (in all seven remaining counties in the San Joaquin Valley) and District Rule 4201. See permit shield conditions #9 and #10.

County Rule 404 (Madera), 406 (Fresno) and 407 (all six remaining counties in the San Joaquin Valley)

These county rules contain a limit on sulfur compounds. The limit at the point of discharge is 0.2 percent by volume, 2000 ppmv, calculate as sulfur dioxide (SO<sub>2</sub>), on a dry basis averaged over 15 consecutive minutes.

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The maximum fuel sulfur content of gasoline that can be combusted in internal combustion (IC) engines to comply with the sulfur emission rate of 2000 ppmv is calculated as follows:

*Maximum Fuel Sulfur Content of Gasoline to Assure Compliance with Rule 4801*

$$\frac{\left(130,000 \frac{\text{Btu}}{\text{gal}}\right) \times \left(\frac{9190 \text{ dscf}}{10^6 \text{ Btu}}\right) \times \left(32.06 \frac{\text{g S}}{\text{mol}}\right) \times \left(0.002 \frac{\text{mol S}}{\text{mol exhaust}}\right) \times \left(28.317 \frac{\text{L}}{\text{cf}}\right)}{\left(23.6 \frac{\text{L}}{\text{mol}}\right) \times \left(6.17 \frac{\text{lb}}{\text{gal}}\right) \times \left(453.59 \frac{\text{g}}{\text{lb}}\right)} = 0.032 \frac{\text{lb S}}{\text{lb Gasoline}}$$

where

$$\left(\frac{9190 \text{ dscf}}{10^6 \text{ Btu}}\right) = \text{F - Factor for Gasoline (40 CFR Appendix A Table 19-1)}$$

130,000 = heat content of gasoline (AP42, Appendix A)

7.05 = density of gasoline (AP42, Appendix A)

23.6 = number of liters 1 mole of gas occupies at standard condition (1 atm, 15.5 °C)

32.06 = molecular weight of sulfur

Gasoline with a sulfur content of less than 3.2% will satisfy the conditions of District Rule 4801. The CaRFG Standards for gasoline limits the sulfur content of gasoline sold in California to 80 ppmw, or 0.008% by weight (see Appendix C). IC engines qualifying to use this template must be fired on CaRFG quality gasoline with a maximum sulfur content of 0.008% by weight. The use of this low sulfur gasoline assures compliance with each county's rule. Recordkeeping requirements assure this limit is met (see template permit conditions #3, #4, and #8).

Rules 406 (Fresno), 404 (Madera), 407 (in all six remaining counties in the San Joaquin Valley) have been submitted to the EPA and are currently included in the SIP. By using this template the applicant is requesting a permit shield from the requirements of Rule 406 (Fresno), 404 (Madera), 407 (in all six remaining counties in the San Joaquin Valley). See template permit condition #9 and #10.

### District Rule 2520, 9.4.2, 9.5.2

Section 9.4.2 states that periodic monitoring be required if none is associated with a given emission limit to assure compliance. Monitoring is required for the gasoline being fired in the IC engine and particulate matter (PM) emissions (see template permit conditions #4-7).

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Section 9.5.2 requires all records be maintained for at least five years. Template permit condition #8 requires that all records be maintained for at least five years.

### V. Permit Shield

A permit shield legally protects a facility from enforcement of the shielded regulations when a source is in compliance with the terms and conditions of the Title V permit. Compliance with the terms and conditions of the Title V permit is considered compliance with all applicable requirements upon which those conditions are based. A permit shield is requested in template permit conditions #9 and #10.

### VI. Permit Conditions

The following conditions will be incorporated into the Title V permit of any facility choosing to make use of template #SJV-IC-2-0.

1. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)],
2. Particulate matter emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
3. Unit shall be fired on gasoline with a sulfur content of less than 0.008% by weight. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
4. Operator shall maintain copies of fuel invoices and supplier certification of gasoline sulfur content. [District Rule 2520, 9.4.2]
5. Records of operating hours shall be kept for units operating less than 200 hours per year. [District Rule 2520, 9.4.2]
6. On all units which are not emergency or backup IC engines operating less than 200 hours per year, operator shall perform a source test for particulate emissions within six months of the initial Title V permit issuance. Source testing for particulate matter shall be performed according to EPA Method 5, stack gas velocity by EPA Method 2, and the stack gas moisture content by EPA Method 4. If the initial PM test result is less than or equal to 0.06 grain/dscf, then testing shall occur not less than once every 5 years. Otherwise testing shall occur not less than once every 24 months. [District Rule 2520, 9.4.2]





## **Template #SJV-IC-2-0**

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7. Test results from an engine that represents a group of engines in terms of rated brake horsepower, engine make and series, operational conditions, fuel used, and control method, shall satisfy testing requirements provided this group of engines is owned and operated by a single owner/operator. [District Rule 2520, 9.4.2]

8. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.5.2]

9. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements of SJVUAPCD Rule 4201; Rules 406 (Fresno), 404 (Madera), 407 (Kern, Kings, San Joaquin, Stanislaus, Merced, Tulare). A permit shield is granted from these requirements. [District Rule 2520, 13.2]

10. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Rules 402 (Madera) and 404 (Fresno, Merced, Kern, Kings, San Joaquin, Stanislaus, Tulare). A permit shield is granted from these requirements. [District Rule 2520, 13.2]

## APPENDIX A

### EPA COMMENTS/DISTRICT RESPONSE

## **EPA COMMENTS / DISTRICT RESPONSE**

The EPA's comments regarding this template are contained in EPA's 10/1/96 letter. A copy of this letter is available at the District.

### **EPA COMMENT**

In the future, for all model general permit templates, the public notice should clarify that this will be the public's only opportunity to comment on the specific permit conditions of the template.

### **DISTRICT RESPONSE**

The suggested clarification will be incorporated into future public notices for general permit templates.

### **EPA COMMENT**

The District should add a statement to "Category B" of the Applicable Requirements section to clarify that Table 1 does not necessarily include all the requirements that may apply to a source that qualifies to use this template.

### **DISTRICT RESPONSE**

This clarification will be incorporated into the template. The second paragraph will be amended to state that Table I, Applicable Requirements, does not necessarily include all federally enforceable requirements that apply to internal combustion engines qualifying to use this template, and that it is the source's responsibility to determine any and all applicable requirements to which the source is subject.

### **EPA COMMENT**

In Table 1, District 4801 should be listed as Category 'D' and the corresponding county SIP rules should be listed as Category 'A'.

### **DISTRICT RESPONSE**

Table I, Applicable Requirements, will be amended by:

- a. Removing SJVUAPCD Rule 4801 from the Table (it is not submitted for approval into the SIP)
- b. Adding the county SIP rules corresponding to 4801 as 'Category A'

**EPA COMMENT**

The EPA suggests that the use of AP42 factors for PM compliance demonstration is insufficient for units with SCR and suggests an initial test or District provision of source test information to show compliance.

**DISTRICT RESPONSE**

Units using this template are required to source test within 6 months of Title V permit issuance. A test within the 24 months prior to permit issuance will be considered sufficient.

**EPA COMMENT**

Recordkeeping requirements for units that fire non-PUC regulated gas or diesel with supplier-certified sulfur content greater than 0.05% by weight should include fuel used and testing/sampling results.

**DISTRICT RESPONSE**

Units qualified to use this template must fire on gasoline with a sulfur content less than or equal to 0.008% by weight. The template requires the source maintain supplier certifications. This information must be maintained for a period of at least 5 years.

**EPA COMMENT**

District Rule 4305 and 4351 include CO limits that are not currently federally enforceable and not made so by any streamlining action. The District should either form a District-only portion of the template including CO limits or not include them in the template while forming a permit shield to exclude the CO limits.

**DISTRICT RESPONSE**

These rules are not applicable to internal combustion engines.

**EPA COMMENT**

The District may want to incorporate conditions for permit renewal into template permits.

**DISTRICT RESPONSE**

The Federal Register notice of April 24, 1996 announcing interim approval of the SJVUAPCD Rule 2520 states "Permits issued under a program with interim approval have full standing with respect to Part 70...". The requirement to reissue the general permit template every 5 years is not part of Rule 2520. Such a requirement is not currently federally applicable.

**EPA COMMENT**

Condition should be added stating that if a source is operating under a general permit or general permit template, and is later determined not to qualify for the template, only the portion of the facility covered by the template shall be subject to enforcement action for operation without a permit.

**DISTRICT RESPONSE**

The Federal Register notice of April 24, 1996 announcing interim approval of the SJVUAPCD Rule 2520 states "Permits issued under a program with interim approval have full standing with respect to Part 70...". The interim approval issue stated in this comment is not currently part of Rule 2520. Such a requirement is not currently federally applicable.

**EPA COMMENT**

A time period for reporting deviations consistent with SJVUAPCD's definition of "prompt," should be included in the template.

**DISTRICT RESPONSE**

Reporting of deviations is covered by the facility-wide template.

**EPA COMMENT**

Compliance certification language on the template qualification form should be made to conform with 40 CFR 70 requirements.

**DISTRICT RESPONSE**

The template will be submitted as part of a complete Title V application. The Title V application contains a Compliance Certification Form (TVFORM-005) in the SJVUAPCD Title V Permit Application Package). On the Compliance Certification Form the responsible official certifies to the truth, accuracy, and completeness of the title V application, including all supporting information.

**EPA COMMENT**

The template does not address the NOx emission standards that apply to these units.

**DISTRICT RESPONSE**

The NOx emission standard from District Rule 4701 is not currently federally enforceable. Once this rule is included in the SIP it will be addressed.

**EPA COMMENT**

There appear to be some typos in the permit conditions dealing with permit shields.

**DISTRICT RESPONSE**

These corrections will be made.

**EPA COMMENT**

Condition #3 should read "Unit shall be fired only on gasoline with a supplier-certified sulfur content of less than 0.008% by weight."

**DISTRICT RESPONSE**

Condition #3 will be changed to read "Unit shall be fired only on gasoline with a supplier-certified sulfur content of less than 0.008% by weight."

**EPA COMMENT**

Condition #4 should read "If the IC engine is fired...the operator shall maintain copies of all fuel invoices and supplier certifications of gasoline sulfur content."

**DISTRICT RESPONSE**

Condition #4 will be changed to read "If the IC engine is fired...the operator shall maintain copies of all fuel invoices and supplier certifications of gasoline sulfur content."

## APPENDIX B

### PUBLIC COMMENTS/DISTRICT RESPONSE



## Public Comments/District Response

No public comments were received on General Permit Template #SJV-IC-2-0.

## APPENDIX C

### CaRFG Standards for Gasoline Sold in California

Attachment for  
Guidelines for Variances from the Standards in CaRFG Regulations

CaRFG Standards for Gasoline Sold in California  
(to become effective in 1996)

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	"Flat" Limit	"Averaging" Limit	"Cap" Limit
Reid vapor pressure (psi, max)	7.0	--	7.0
Sulfur (ppmw, max.)	40	30	80
Benzene (vol.%, max.)	1.00	0.80	1.20
Aromatic HC (vol.%, max.)	25	22	30
Olefins (vol.%, max.)	6.0	4.0	10
Oxygen (wt.%)**	1.8 to 2.2	--	1.8 (min.) 2.7 (max.)
Temperature at 50% distilled (°F, max.)	210	200	220
Temperature at 90% distilled (°F, max.)	300	290	330

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\*The "caps" apply to all gasoline at any place in the marketing system, regardless of alternative specifications.

\*\*The oxygen specification (1.8 to 2.2%) already is in force during the "winter oxygenate season". In some situations, the minimum cap for oxygen may apply only during that season. (See below.)

For each property but RVP and oxygen, a refiner may choose either the "flat" limit or the "averaging" limit. The flat limit applies to every batch of finished gasoline. The averaging limit is similar to a number that must not be exceeded by the rolling 180-day average value of a property. Alternative values of flat or averaging limits can be used if they have emission effects equivalent to the effects of the limits listed above. The "predictive models" or an emission test program must be used to demonstrate the equivalency. No alternatives are allowed for the cap limits (except as discussed below for oxygen).

Special considerations apply to alternatives to the oxygen limits:

--All the listed limits for oxygen are enforced during the "winter oxygenate season", without exception.

--If an alternative flat limit for oxygen has been approved and is less than 1.8 wt. %, the minimum oxygen cap at 1.8 wt.% will apply only during the winter oxygenate season.

APPENDIX D

TEMPLATE QUALIFICATION FORM  
FOR  
TEMPLATE # SJV-IC-2-0

## Template #SJV-IC-2-0

### Title V General Permit Template Qualification Form

District Permit # \_\_\_\_\_

Please answer the questions in the table below. An internal combustion (IC) engine which meets the criteria of this table is qualified to use this template as part of a Title V application. To use this template, remove this sheet and attach to application.

Yes	No	Description of Qualifying Units
		Is this internal combustion engine fired on gasoline? If "yes", then continue to next question; otherwise STOP - you cannot use this template.
		Is the sulfur content of the gasoline fired less than or equal to 0.008% by weight? If "yes", you qualify to use this template; otherwise STOP - you cannot use this template.

Based on information and belief formed after reasonable inquiry:

- 1) the information on this form is true and correct and
- 2) the facility certifies compliance with this template's permit conditions:

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Responsible Official (Please Print)